

EAST Search History

| Ref # | Hits | Search Query | DBs | Default Operator | Plurals | Time Stamp |
|-------|------|---|---|------------------|---------|------------------|
| L1 | 2 | "trace data" and "sensitivity setting" | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2007/05/25 08:11 |
| L2 | 25 | "trace data" and "compression" and (jump near3 address) | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2007/05/25 08:12 |
| S1 | 104 | (BILLECI-M BILLECI-MICHAEL SLEGEL-T SLEGEL-TIMOTHY SLEGEL-TIMOTHY-J SLEGEL-TIMOTHY-JOHN SLEGEL-T-j).in. | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2006/11/14 09:16 |
| S2 | 2 | "20020178403".did. | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2006/11/14 11:07 |
| S3 | 4 | "6802031".pn. | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2006/11/14 12:22 |
| S4 | 7 | ("5754827" "6094729" "6145100" "6243836" "6314530" "6594185").PN. OR ("6802031"). URPN. | US-PGPUB; USPAT; USOCR | OR | ON | 2006/11/14 12:23 |
| S5 | 262 | 714/35.ccls. | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2007/05/08 09:49 |
| S6 | 279 | 714/34.ccls. | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2006/11/15 12:57 |
| S7 | 503 | 714/39.ccls. | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2006/11/15 14:15 |

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|-----|-----|---|---|----|----|------------------|
| S8 | 81 | 714/34.ccls. and trace | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2006/11/15 12:57 |
| S9 | 154 | 714/39.ccls. and trace | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2006/11/15 14:16 |
| S10 | 493 | 714/45.ccls. | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2006/11/16 12:28 |
| S11 | 254 | 714/45.ccls. and trace | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2006/11/16 12:29 |
| S12 | 65 | 714/45.ccls. and trace and compress\$3 | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2006/11/16 13:55 |
| S13 | 1 | 714/45.ccls. and trace and "wrap-back" | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2006/11/16 13:56 |
| S14 | 9 | 714/45.ccls. and trace and "wrap back" | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2006/11/16 14:16 |
| S15 | 1 | pre-hang adj condition | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2006/11/16 14:27 |
| S16 | 206 | hang adj condition | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2006/11/16 14:17 |
| S17 | 9 | (hang adj condition) and (count adj3 cycle) | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2006/11/16 14:17 |

EAST Search History

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|-----|------|---|---|----|----|------------------|
| S18 | 127 | hardware adj trace | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2006/11/16 14:27 |
| S19 | 14 | 714/35.ccls. and @pd>="20061117" | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2007/05/08 10:22 |
| S20 | 17 | 714/34.ccls. and @pd>="20061117" | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2007/05/08 10:26 |
| S21 | 31 | 714/39.ccls. and @pd>="20061117" | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2007/05/08 13:43 |
| S22 | 37 | 714/45.ccls. and @pd>="20061117" | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2007/05/24 14:35 |
| S23 | 12 | "hardware trace data" | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2007/05/08 13:57 |
| S24 | 4217 | "trace data" | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2007/05/08 13:57 |
| S25 | 139 | "trace data" and ("wrap back" or "circular buffer") | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2007/05/09 08:49 |
| S26 | 19 | "trace data" and "secondary memory" | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2007/05/09 08:53 |
| S27 | 543 | "trace data" and "compression" | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2007/05/25 08:45 |

EAST Search History

| | | | | | | |
|-----|----|--|---|----|----|------------------|
| S28 | 1 | "trace data" and "compression" and "sensitivity setting" | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2007/05/25 08:11 |
| S29 | 86 | "trace data" and "compression" and (user with setting) | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2007/05/09 09:04 |
| S30 | 1 | "hang condition" with trace | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2007/05/09 12:47 |
| S31 | 10 | "hang condition" and trace | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2007/05/09 13:26 |
| S32 | 55 | "hang" with trace | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2007/05/09 13:26 |
| S33 | 2 | 714/45.ccls. and @pd>="20070508" | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2007/05/24 14:06 |
| S34 | 3 | 714/39.ccls. and @pd>="20070508" | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2007/05/24 14:07 |
| S35 | 2 | 714/35.ccls. and @pd>="20070508" | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2007/05/24 14:08 |
| S36 | 2 | 714/34.ccls. and @pd>="20070508" | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2007/05/24 14:08 |

EAST Search History

| Ref # | Hits | Search Query | DBs | Default Operator | Plurals | Time Stamp |
|-------|------|--------------------------------|----------|------------------|---------|------------------|
| L3 | 101 | 714/45.ccls. | US-PGPUB | OR | ON | 2007/05/25 08:34 |
| L4 | 254 | "trace data" and "compression" | US-PGPUB | OR | ON | 2007/05/25 08:50 |
| L5 | 155 | "trace data" and "sensitivity" | US-PGPUB | OR | ON | 2007/05/25 08:50 |

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Web

Results 1 - 4 of 4 for **"trace data" AND "compression" AND "jump address"**. (0.28 seconds)

Tip: Try removing quotes from your search to get more results.

[PDF] [Reconfigurable real-time address trace compressor for embedded ...](#)

File Format: PDF/Adobe Acrobat

Address trace **compression** represents that the address data, ... One is the branch **jump address**, and the other is. the next address of ...

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Trace Data after PC. Pattern Reduction. Phase. 12 bits *. 348272 hoes. 12 bits * 400472.

lines. 12 bits 292983. lines. **Compression Rate**. after Non- ...

ieeexplore.ieee.org/iel5/8988/28529/01275748.pdf?arnumber=1275748 - [Similar pages](#)

[PS] [Automatic Design of Computer Instruction Sets](#)

File Format: Adobe PostScript

To achieve a larger **compression** ratio, Samples' technique for compressing. **trace data** [Sam89a, Sam89b] is used. In Samples' technique, the trace is ...

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[System for monitoring computer system performance - Patent Review ...](#)

A typical trace for a small program can include gigabytes of **trace data**. ... Next Patent (Dynamically linked and shared **compression/dec...**) ...

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[Method and system for performing a hardware trace - Patent 20050022068](#)

A method of controlling **compression** of **trace data** in a processor, the method comprising: providing a user programmable **sensitivity** setting for each unit ...

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Calibrating **TRACE** **data**, 2-4; Catalog, **TRACE**, 2-1; CCD Camera, 3-2 ... JPEG **compression**, 3-2. LCUR_IMAGE, 2-3; Lightcurve of **TRACE** images, 2-3; Lumogen, 3-2,

...
www.darts.isas.ac.jp/pub/solar/yohkoh/sswdoc/guides/tag/tag_index.html - 13k - [Cached](#) - [Similar pages](#)

[3 TRACE Instrument Guide](#)

TRACE uses a modified 12-bit JPEG algorithm for data **compression**. ... easy to derive differential emission measure distributions from **TRACE** **data**, ...

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[\[PDF\] Adaptive wavelet read-ahead eye-gaze based video **compression**](#)

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present an approach where eye-gaze **trace data** are integral to the **compression** process which has demonstrated its. usefulness in yielding high **compression** ...

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It means that all **TRACE** **data** (observations) are being made available to ... Spacecraft memory use is optimized by onboard 12 bit JPEG **compression** of data, ...

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[\[PDF\] An Efficient Single-Pass Trace **Compression** Technique Utilizing ...](#)

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Compression ratio of Dinero **trace data** component. ... evaluated techniques, as well as **sensitivity** of the SBC **compression** ratio.to ...

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trace data to achieve **compression** sizes comparable to. that of other trace **compression** schemes. ... since they show the **sensitivity** of the **compression** ...

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increase the **sensitivity** of **compression** techniques to. statistical characteristics of traces.

... "Incomplete Trace Data and Trace Driven Sim- ...

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[PDF] [Application of 2 generation wavelets to seismic imaging](#)

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We study the **sensitivity** of seismic imaging to lossy data. **compression** using a new generation of directional, nonseparable wavelets developed by Donoho et ...

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[IEEE Computer Society Bioinformatics - Abstract of Accepted Papers](#)

One way of combining speed and **sensitivity** is to use an anchored-alignment approach. ...

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"trace data" AND "compression" ANI

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Best 200 shown

Relevance scale 

- 1** [Transporting compressed video over ATM networks with explicit-rate feedback control](#) 

T. V. Lakshman, P. P. Mishra, K. K. Ramakrishnan
 October 1999 **IEEE/ACM Transactions on Networking (TON)**, Volume 7 Issue 5

Publisher: IEEE PressFull text available:  [pdf\(232.17 KB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)**Keywords:** ATM, congestion control, packet video

- 2** [An efficient single-pass trace compression technique utilizing instruction streams](#) 

 Aleksandar Milenković, Milena Milenković
 January 2007 **ACM Transactions on Modeling and Computer Simulation (TOMACS)**,
 Volume 17 Issue 1

Publisher: ACM PressFull text available:  [pdf\(848.21 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Trace-driven simulations have been widely used in computer architecture for quantitative evaluations of new ideas and design prototypes. Efficient trace compression and fast decompression are crucial for contemporary workloads, as representative benchmarks grow in size and number. This article presents Stream-Based Compression (SBC), a novel technique for single-pass compression of address traces. The SBC technique compresses both instruction and data addresses by associating them with a particu ...

Keywords: Instruction and data traces, instruction streams, trace compression

- 3** [Trace-driven memory simulation: a survey](#) 

 Richard A. Uhlig, Trevor N. Mudge
 June 1997 **ACM Computing Surveys (CSUR)**, Volume 29 Issue 2

Publisher: ACM PressFull text available:  [pdf\(636.11 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

As the gap between processor and memory speeds continues to widen, methods for evaluating memory system designs before they are implemented in hardware are becoming increasingly important. One such method, trace-driven memory simulation, has

been the subject of intense interest among researchers and has, as a result, enjoyed rapid development and substantial improvements during the past decade. This article surveys and analyzes these developments by establishing criteria for evaluating trac ...

Keywords: TLBs, caches, memory management, memory simulation, trace-driven simulation

4 Mache: no-loss trace compaction

 A. D. Samples

April 1989 **ACM SIGMETRICS Performance Evaluation Review , Proceedings of the 1989 ACM SIGMETRICS international conference on Measurement and modeling of computer systems SIGMETRICS '89**, Volume 17 Issue 1

Publisher: ACM Press

Full text available:  pdf(798.23 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Execution traces can be significantly compressed using their referencing locality. A simple observation leads to a technique capable of compressing execution traces by an order of magnitude; instruction-only traces are compressed by two orders of magnitude. This technique is unlike previously reported trace compression techniques in that it compresses without loss of information and, therefore, does not affect trace-driven simulation time or accuracy.

5 Fast detection of communication patterns in distributed executions

Thomas Kunz, Michiel F. H. Seuren

November 1997 **Proceedings of the 1997 conference of the Centre for Advanced Studies on Collaborative research CASCON '97**

Publisher: IBM Press

Full text available:  pdf(4.21 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Understanding distributed applications is a tedious and difficult task. Visualizations based on process-time diagrams are often used to obtain a better understanding of the execution of the application. The visualization tool we use is Poet, an event tracer developed at the University of Waterloo. However, these diagrams are often very complex and do not provide the user with the desired overview of the application. In our experience, such tools display repeated occurrences of non-trivial commun ...

6 Blocking: exploiting spatial locality for trace compaction

 Anant Agarwal, Minor Huffman

April 1990 **ACM SIGMETRICS Performance Evaluation Review , Proceedings of the 1990 ACM SIGMETRICS conference on Measurement and modeling of computer systems SIGMETRICS '90**, Volume 18 Issue 1

Publisher: ACM Press

Full text available:  pdf(1.01 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Trace-driven simulation is a popular method of estimating the performance of cache memories, translation lookaside buffers, and paging schemes. Because the cost of trace-driven simulation is directly proportional to trace length, reducing the number of references in the trace significantly impacts simulation time. This paper concentrates on trace driven simulation for cache miss rate analysis. Previous schemes, such as cache filtering, exploited temporal locality for compressing traces and ...

7 Automatic Generation of High-Performance Trace Compressors

Martin Burtscher, Nana B. Sam

March 2005 **Proceedings of the international symposium on Code generation and**

optimization CGO '05**Publisher:** IEEE Computer SocietyFull text available: [pdf\(382.69 KB\)](#) Additional Information: [full citation](#), [abstract](#), [citations](#), [index terms](#)

Program execution traces are frequently used in industry and academia. Yet, most trace-compression algorithms have to be re-implemented every time the trace format is changed, which takes time, is error prone, and often results in inefficient solutions. This paper describes and evaluates TCgen, a tool that automatically generates portable, customized, high-performance trace compressors. All the user has to do is provide a description of the trace format and select one or more predictors to compr ...

8 Observing TCP dynamics in real networks Jeffrey C. MogulOctober 1992 **ACM SIGCOMM Computer Communication Review , Conference proceedings on Communications architectures & protocols SIGCOMM '92**, Volume 22 Issue 4**Publisher:** ACM PressFull text available: [pdf\(1.39 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The behavior of the TCP protocol in simple situations is well-understood, but when multiple connections share a set of network resources the protocol can exhibit surprising phenomena. Earlier studies have identified several such phenomena, and have analyzed them using simulation or observation of contrived situations. This paper shows how, by analyzing traces of a busy segment of the Internet, it is possible to observe these phenomena in "real life" and measure both their frequ ...

9 Developing regions & peer-to-peer: Analysis of WWW traffic in Cambodia and Ghana Bowei Du, Michael Demmer, Eric BrewerMay 2006 **Proceedings of the 15th international conference on World Wide Web WWW '06****Publisher:** ACM PressFull text available: [pdf\(358.66 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

In this paper we present an analysis of HTTP traffic captured from Internet cafés and kiosks from two different developing countries -- Cambodia and Ghana. This paper has two main contributions. The first contribution is a analysis of the characteristics of the web trace, including the distribution and classification of the web objects requested by the users. We outline notable features of the data set which effect the performance of the web for users in developing regions. Using the trace ...

Keywords: Cambodia, Ghana, HTTP, WWW, caching, classification, delay tolerant networking, developing regions, dynamic content, hypertext transfer protocol, measurement, performance analysis, proxy, redundant transfers, trace, world wide web

10 Analysis: Dynamic path conditions in dependence graphs Christian Hammer, Martin Grimme, Jens Krinke.January 2006 **Proceedings of the 2006 ACM SIGPLAN symposium on Partial evaluation and semantics-based program manipulation PEPM '06****Publisher:** ACM PressFull text available: [pdf\(346.82 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We present a new approach combining dynamic slicing with path conditions in dependence graphs enhanced by dynamic information collected in a program trace. While dynamic slicing can only reveal *that* certain dependences have been holding during program execution, the combination with dynamic path conditions reveals *why*, as well. The approach described here has been implemented for full ANSI-C. It uses the static

dependence graph to produce a fine-grained variable and dependence trace ...

Keywords: dynamic chopping, dynamic slicing, information flow control, path condition

11 On the performance of wide-area thin-client computing

 Albert M. Lai, Jason Nieh

May 2006 **ACM Transactions on Computer Systems (TOCS)**, Volume 24 Issue 2

Publisher: ACM Press

Full text available:  pdf(984.32 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

While many application service providers have proposed using thin-client computing to deliver computational services over the Internet, little work has been done to evaluate the effectiveness of thin-client computing in a wide-area network. To assess the potential of thin-client computing in the context of future commodity high-bandwidth Internet access, we have used a novel, noninvasive slow-motion benchmarking technique to evaluate the performance of several popular thin-client computing platf ...

Keywords: Internet2, Thin-client, slow-motion benchmarking, wide-area networks

12 A real-time garbage collector with low overhead and consistent utilization

 David F. Bacon, Perry Cheng, V. T. Rajan

January 2003 **ACM SIGPLAN Notices , Proceedings of the 30th ACM SIGPLAN-SIGACT symposium on Principles of programming languages POPL '03**, Volume 38 Issue 1

Publisher: ACM Press

Full text available:  pdf(517.37 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Now that the use of garbage collection in languages like Java is becoming widely accepted due to the safety and software engineering benefits it provides, there is significant interest in applying garbage collection to hard real-time systems. Past approaches have generally suffered from one of two major flaws: either they were not provably real-time, or they imposed large space overheads to meet the real-time bounds. We present a mostly non-moving, dynamically defragmenting collector that overco ...

Keywords: defragmentation, read barrier, real-time scheduling, utilization

13 Identifying and Exploiting Spatial Regularity in Data Memory References

Tushar Mohan, Bronis R. de Supinski, Sally A. McKee, Frank Mueller, Andy Yoo, Martin Schulz November 2003 **Proceedings of the 2003 ACM/IEEE conference on Supercomputing SC '03**

Publisher: IEEE Computer Society

Full text available:  pdf(264.75 KB) Additional Information: [full citation](#), [abstract](#), [citations](#)

The growing processor/memory performance gap causes the performance of many codes to be limited by memory accesses. If known to exist in an application, strided memory accesses forming streams can be targeted by optimizations such as prefetching, relocation, remapping, and vector loads. Undetected, they can be a significant source of memory stalls in loops. Existing stream-detection mechanisms either require special hardware, which may not gather statistics for subsequent analysis, or are limite ...

14 Deployment experience: Design and deployment of industrial sensor networks:

 **experiences from a semiconductor plant and the north sea**

Lakshman Krishnamurthy, Robert Adler, Phil Buonadonna, Jasmeet Chhabra, Mick Flanigan,

Nandakishore Kushalnagar, Lama Nachman, Mark Yarvis
November 2005 **Proceedings of the 3rd international conference on Embedded networked sensor systems SenSys '05**

Publisher: ACM Press

Full text available:  pdf(677.48 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Sensing technology is a cornerstone for many industrial applications. Manufacturing plants and engineering facilities, such as shipboard engine rooms, require sensors to ensure product quality and efficient and safe operation. We focus on one representative application, preventative equipment maintenance, in which vibration signatures are gathered to predict equipment failure. Based on application requirements and site surveys, we develop a general architecture for this class of industrial appli ...

Keywords: embedded hardware design, industrial applications of sensor networks

15 Reviewed articles: Troubleshooting wireless mesh networks



Lili Qiu, Paramvir Bahl, Ananth Rao, Lidong Zhou

October 2006 **ACM SIGCOMM Computer Communication Review**, Volume 36 Issue 5

Publisher: ACM Press

Full text available:  pdf(352.47 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Effective network troubleshooting is critical for maintaining efficient and reliable network operation. Troubleshooting is especially challenging in multi-hop wireless networks because the behavior of such networks depends on complicated interactions between many factors such as RF noise, signal propagation, node interference, and traffic flows. In this paper we propose a new direction for research on fault diagnosis in wireless mesh networks. Specifically, we present a diagnostic system that em ...

Keywords: fault diagnosis, mesh networks, simulation

16 Caching and database scaling in distributed shared-nothing information retrieval systems



Anthony Tomasic, Hector Garcia-Molina

June 1993 **ACM SIGMOD Record , Proceedings of the 1993 ACM SIGMOD international conference on Management of data SIGMOD '93**, Volume 22 Issue 2

Publisher: ACM Press

Full text available:  pdf(1.07 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

A common class of existing information retrieval system provides access to abstracts. For example Stanford University, through its FOLIO system, provides access to the INSPECT database of abstracts of the literature on physics, computer science, electrical engineering, etc. In this paper this database is studied by using a trace-driven simulation. We focus on physical index design, inverted index caching, and database scaling in a distributed shared-nothing system. All three issues are show ...

17 Phase tracking and prediction



Timothy Sherwood, Suleyman Sair, Brad Calder

May 2003 **ACM SIGARCH Computer Architecture News , Proceedings of the 30th annual international symposium on Computer architecture ISCA '03**, Volume 31 Issue 2

Publisher: ACM Press

Full text available:  pdf(674.18 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

In a single second a modern processor can execute billions of instructions. Obtaining a

bird's eye view of the behavior of a program at these speeds can be a difficult task when all that is available is cycle by cycle examination. In many programs, behavior is anything but steady state, and understanding the patterns of behavior, at run-time, can unlock a multitude of optimization opportunities. In this paper, we present a unified profiling architecture that can efficiently capture, classify, and ...

18 Automating vertical profiling



Matthias Hauswirth, Amer Diwan, Peter F. Sweeney, Michael C. Mozer
 October 2005 **ACM SIGPLAN Notices , Proceedings of the 20th annual ACM SIGPLAN conference on Object oriented programming, systems, languages, and applications OOPSLA '05**, Volume 40 Issue 10

Publisher: ACM Press

Full text available: [pdf\(395.90 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Last year at OOPSLA we presented a methodology, *vertical profiling*, for understanding the performance of object-oriented programs. The key insight behind this methodology is that modern programs run on top of many layers (virtual machine, middleware, etc) and thus we need to collect and combine information from all layers in order to understand system performance. Although our methodology was able to explain previously unexplained performance phenomena, it was extremely labor intensive. I ...

Keywords: hardware performance monitors, perturbation, software performance monitors, vertical profiling, whole-system analysis

19 The FINITE STRING Newsletter: Abstracts of current literature



Computational Linguistics Staff
 January 1987 **Computational Linguistics**, Volume 13 Issue 1-2

Publisher: MIT Press

Full text available: [pdf\(6.15 MB\)](#) [Publisher Site](#) Additional Information: [full citation](#)

20 Performance evaluation of UDP lite for cellular video



Amulya Singh, Almudena Konrad, Anthony D. Joseph
 January 2001 **Proceedings of the 11th international workshop on Network and operating systems support for digital audio and video NOSSDAV '01**

Publisher: ACM Press

Full text available: [pdf\(308.36 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The current generation of wireless links pose a significant challenge for sending video streams, as these links have low bit rate and high error rate compared to wired links. Sending high bit rate delay-sensitive traffic over wireless links requires appropriate error resilient video compression algorithms and transport/link layer protocols. We have built a wireless video system using an off-the-shelf error resilient low bit rate video codec with our implementations of UDP Lite and PPP Li ...

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Relevance scale **1 STEP: a framework for the efficient encoding of general trace data**

 Rhodes Brown, Karel Driesen, David Eng, Laurie Hendren, John Jorgensen, Clark Verbrugge, Qin Wang
 November 2002 **ACM SIGSOFT Software Engineering Notes , Proceedings of the 2002 ACM SIGPLAN-SIGSOFT workshop on Program analysis for software tools and engineering PASTE '02**, Volume 28 Issue 1

Publisher: ACM PressFull text available:  [pdf\(160.82 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Traditional tracing systems are often limited to recording a fixed set of basic program events. This limitation can frustrate an application or compiler developer who is trying to understand and characterize the complex behavior of software systems such as a Java program running on a Java Virtual Machine. In the past, many developers have resorted to specialized tracing systems that target a particular type of program event. This approach often results in an obscure and poorly documented encoding ...

Keywords: data definition language, program event trace, sequential data encoding**2 Generating Java trace data**

 Steven P. Reiss, Manos Renieris
 June 2000 **Proceedings of the ACM 2000 conference on Java Grande JAVA '00**

Publisher: ACM PressFull text available:  [pdf\(671.64 KB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)**3 RATCHET: real-time address trace compression hardware for extended traces**

 Colleen D. Schieber, Eric E. Johnson
 April 1994 **ACM SIGMETRICS Performance Evaluation Review**, Volume 21 Issue 3-4

Publisher: ACM PressFull text available:  [pdf\(783.24 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The address traces used in computer architecture research are commonly generated using software techniques that introduce time dilations of an order of magnitude or more. Such techniques may also omit classes of memory references that are important for accurate models of computer systems, such as instruction prefetches, operating system references,

and interrupt activity. We describe a technique for capturing all classes of references in real time. RATCHET employs trace filtering hardware to redu ...

4 A unified header compression framework for low-bandwidth links

 Jeremy Lilley, Jason Yang, Hari Balakrishnan, Srinivasan Seshan
August 2000 **Proceedings of the 6th annual international conference on Mobile computing and networking MobiCom '00**

Publisher: ACM Press

Full text available:  pdf(1.35 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Compressing protocol headers has traditionally been an attractive way of conserving bandwidth over low-speed links, including those in wireless systems. However, despite the growth in recent years in the number of end-to-end protocols beyond TCP/IP, header compression deployment for those protocols has not kept pace. This is in large part due to complexities in implementation, which often requires a detailed knowledge of kernel internals, and a lack of a common way of pursuing the general p ...

5 Combining the concepts of compression and caching for a two-level filesystem

 Vincent Cate, Thomas Gross
April 1991 **ACM SIGARCH Computer Architecture News , ACM SIGOPS Operating Systems Review , ACM SIGPLAN Notices , Proceedings of the fourth international conference on Architectural support for programming languages and operating systems ASPLOS-IV**, Volume 19 , 25 , 26 Issue 2 , Special Issue , 4

Publisher: ACM Press

Full text available:  pdf(1.10 MB)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

6 An efficient single-pass trace compression technique utilizing instruction streams

 Aleksandar Milenković, Milena Milenković
January 2007 **ACM Transactions on Modeling and Computer Simulation (TOMACS)**, Volume 17 Issue 1

Publisher: ACM Press

Full text available:  pdf(848.21 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Trace-driven simulations have been widely used in computer architecture for quantitative evaluations of new ideas and design prototypes. Efficient trace compression and fast decompression are crucial for contemporary workloads, as representative benchmarks grow in size and number. This article presents Stream-Based Compression (SBC), a novel technique for single-pass compression of address traces. The SBC technique compresses both instruction and data addresses by associating them with a particu ...

Keywords: Instruction and data traces, instruction streams, trace compression

7 Low-loss TCP/IP header compression for wireless networks

Mikael Degermark, Mathias Engan, Björn Nordgren, Stephen Pink
October 1997 **Wireless Networks**, Volume 3 Issue 5

Publisher: Kluwer Academic Publishers

Full text available:  pdf(534.08 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Wireless is becoming a popular way to connect mobile computers to the Internet and other networks. The bandwidth of wireless links will probably always be limited due to properties of the physical medium and regulatory limits on the use of frequencies for radio communication. Therefore, it is necessary for network protocols to utilize the available bandwidth efficiently. Headers of IP packets are growing and the bandwidth required for

transmitting headers is increasing. With the coming of I ...

8 Potential benefits of delta encoding and data compression for HTTP

- Jeffrey C. Mogul, Fred Douglis, Anja Feldmann, Balachander Krishnamurthy
 October 1997 **ACM SIGCOMM Computer Communication Review , Proceedings of the ACM SIGCOMM '97 conference on Applications, technologies, architectures, and protocols for computer communication SIGCOMM '97**, Volume 27 Issue 4

Publisher: ACM Press

Full text available:  pdf(2.00 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Caching in the World Wide Web currently follows a naive model, which assumes that resources are referenced many times between changes. The model also provides no way to update a cache entry if a resource does change, except by transferring the resource's entire new value. Several previous papers have proposed updating cache entries by transferring only the differences, or "delta," between the cached entry and the current value. In this paper, we make use of dynamic traces of the full contents of ...

9 Low-loss TCP/IP header compression for wireless networks

- Mikael Degermark, Mathias Engan, Björn Nordgren, Stephen Pink
 November 1996 **Proceedings of the 2nd annual international conference on Mobile computing and networking MobiCom '96**

Publisher: ACM Press

Full text available:  pdf(1.51 MB)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

10 Using Compressed Bytecode Traces for Slicing Java Programs

Tao Wang, Abhik Roychoudhury

May 2004 **Proceedings of the 26th International Conference on Software Engineering ICSE '04**

Publisher: IEEE Computer Society

Full text available:  pdf(190.61 KB)

Additional Information: [full citation](#), [abstract](#), [citations](#), [index terms](#)

Dynamic slicing is a well-known program debugging technique. Given a program P and input I, it finds all program statements which directly/indirectly affect the values of some variables' occurrences when P is executed with I. Dynamic slicing algorithms often proceed by traversing the execution trace of P produced by input I (or a dependence graph which captures control/data flow in the execution trace). Consequently, it is important to develop space efficient representations of the execution trace. In t ...

11 Transporting compressed video over ATM networks with explicit-rate feedback control

T. V. Lakshman, P. P. Mishra, K. K. Ramakrishnan

October 1999 **IEEE/ACM Transactions on Networking (TON)**, Volume 7 Issue 5

Publisher: IEEE Press

Full text available:  pdf(232.17 KB)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

Keywords: ATM, congestion control, packet video

12 Dealing with high speed links and other measurement challenges: A method to compress and anonymize packet traces

Markus Peuhkuri
 November 2001

Proceedings of the 1st ACM SIGCOMM Workshop on Internet Measurement IMW '01

Publisher: ACM Press

Full text available:  [pdf\(792.18 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Data volume and privacy issues are one of problems related to large-scale packet capture. Utilizing flow nature of Internet traffic can reduce data volume. Removing sensitive information such as IP addresses enhances privacy. Our method makes possible to have same replacement value for given IP address even if capture location or time is different.

Keywords: anonymization, data compression, packet capture

13 Trace-driven memory simulation: a survey 

 Richard A. Uhlig, Trevor N. Mudge

June 1997 **ACM Computing Surveys (CSUR)**, Volume 29 Issue 2

Publisher: ACM Press

Full text available:  [pdf\(636.11 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

As the gap between processor and memory speeds continues to widen, methods for evaluating memory system designs before they are implemented in hardware are becoming increasingly important. One such method, trace-driven memory simulation, has been the subject of intense interest among researchers and has, as a result, enjoyed rapid development and substantial improvements during the past decade. This article surveys and analyzes these developments by establishing criteria for evaluating trac ...

Keywords: TLBs, caches, memory management, memory simulation, trace-driven simulation

14 Mache: no-loss trace compaction 

 A. D. Samples

April 1989 **ACM SIGMETRICS Performance Evaluation Review , Proceedings of the 1989 ACM SIGMETRICS international conference on Measurement and modeling of computer systems SIGMETRICS '89**, Volume 17 Issue 1

Publisher: ACM Press

Full text available:  [pdf\(798.23 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Execution traces can be significantly compressed using their referencing locality. A simple observation leads to a technique capable of compressing execution traces by an order of magnitude; instruction-only traces are compressed by two orders of magnitude. This technique is unlike previously reported trace compression techniques in that it compresses without loss of information and, therefore, does not affect trace-driven simulation time or accuracy.

15 Compressing control ROM for VLSI microprogrammed microprocessors 

 Karl M. Gutttag

November 1980 **ACM SIGMICRO Newsletter , Proceedings of the 13th annual workshop on Microprogramming MICR 13**, Volume 11 Issue 3-4

Publisher: IEEE Press, ACM Press

Full text available:  [pdf\(420.31 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

By taking advantage of information redundancy and MOS structures, control ROMs for

microprogrammed microprocessors can be considerably reduced. The Compressed Control ROM (CCROM) method for reducing control ROMs is described in terms of a simple example that compares the fully horizontal (unencoded) approach, the normal partially encoded approach, and the CCROM approach. Due to using CCROM, the effective cost of control ROM is considerably reduced, and this in turn can have a significant ef ...

16 Designing a trace format for heap allocation events



Trishul Chilimbi, Richard Jones, Benjamin Zorn

October 2000 **ACM SIGPLAN Notices , Proceedings of the 2nd international symposium on Memory management ISMM '00**, Volume 36 Issue 1

Publisher: ACM Press

Full text available: pdf(1.53 MB) Additional information: [full citation](#), [abstract](#), [citations](#), [index terms](#)

Dynamic storage allocation continues to play an important role in the performance and correctness of systems ranging from user productivity software to high-performance servers. While algorithms for dynamic storage allocation have been studied for decades, much of the literature is based on measuring the performance of benchmark programs unrepresentative of many important allocation-intensive workloads. Furthermore, to date no standard has emerged or been proposed for publishing and exchangin ...

17 A protocol-independent technique for eliminating redundant network traffic



Neil T. Spring, David Wetherall

August 2000 **ACM SIGCOMM Computer Communication Review , Proceedings of the conference on Applications, Technologies, Architectures, and Protocols for Computer Communication SIGCOMM '00**, Volume 30 Issue 4

Publisher: ACM Press

Full text available: pdf(808.21 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

We present a technique for identifying repetitive information transfers and use it to analyze the redundancy of network traffic. Our insight is that dynamic content, streaming media and other traffic that is not caught by today's Web caches is nonetheless likely to derive from similar information. We have therefore adapted similarity detection techniques to the problem of designing a system to eliminate redundant transfers. We identify repeated byte ranges between packets to avoid retransmi ...

18 Encoding program executions

Steven P. Reiss, Manos Renieris

July 2001 **Proceedings of the 23rd International Conference on Software Engineering ICSE '01**

Publisher: IEEE Computer Society

Full text available: pdf(185.64 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

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Dynamic analysis is based on collecting data as the program runs. However, raw traces tend to be too voluminous and too unstructured to be used directly for visualization and understanding. We address this problem in two phases: the first phase selects subsets of the data and then compacts it, while the second phase encodes the data in an attempt to infer its structure. Our major compaction/selection techniques include gprof-style N-depth call sequences, selection based on class, compaction b ...

Keywords: dynamic program analysis, program tracing, software understand

19 Automatic Generation of High-Performance Trace Compressors

Martin Burtscher, Nana B. Sam

March 2005 **Proceedings of the international symposium on Code generation and**

optimization CGO '05**Publisher:** IEEE Computer SocietyFull text available:  pdf(382.69 KB) Additional Information: [full citation](#), [abstract](#), [citations](#), [index terms](#)

Program execution traces are frequently used in industry and academia. Yet, most trace-compression algorithms have to be re-implemented every time the trace format is changed, which takes time, is error prone, and often results in inefficient solutions. This paper describes and evaluates TCgen, a tool that automatically generates portable, customized, high-performance trace compressors. All the user has to do is provide a description of the trace format and select one or more predictors to compr ...

20 Efficient support for scan operations in video servers  Prashant J. Shenoy, Harrick M. VinJanuary 1995 **Proceedings of the third ACM international conference on Multimedia MULTIMEDIA '95****Publisher:** ACM PressFull text available:  htm(47.24 KB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)**Keywords:** disk arrays, scan operations, video servers

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